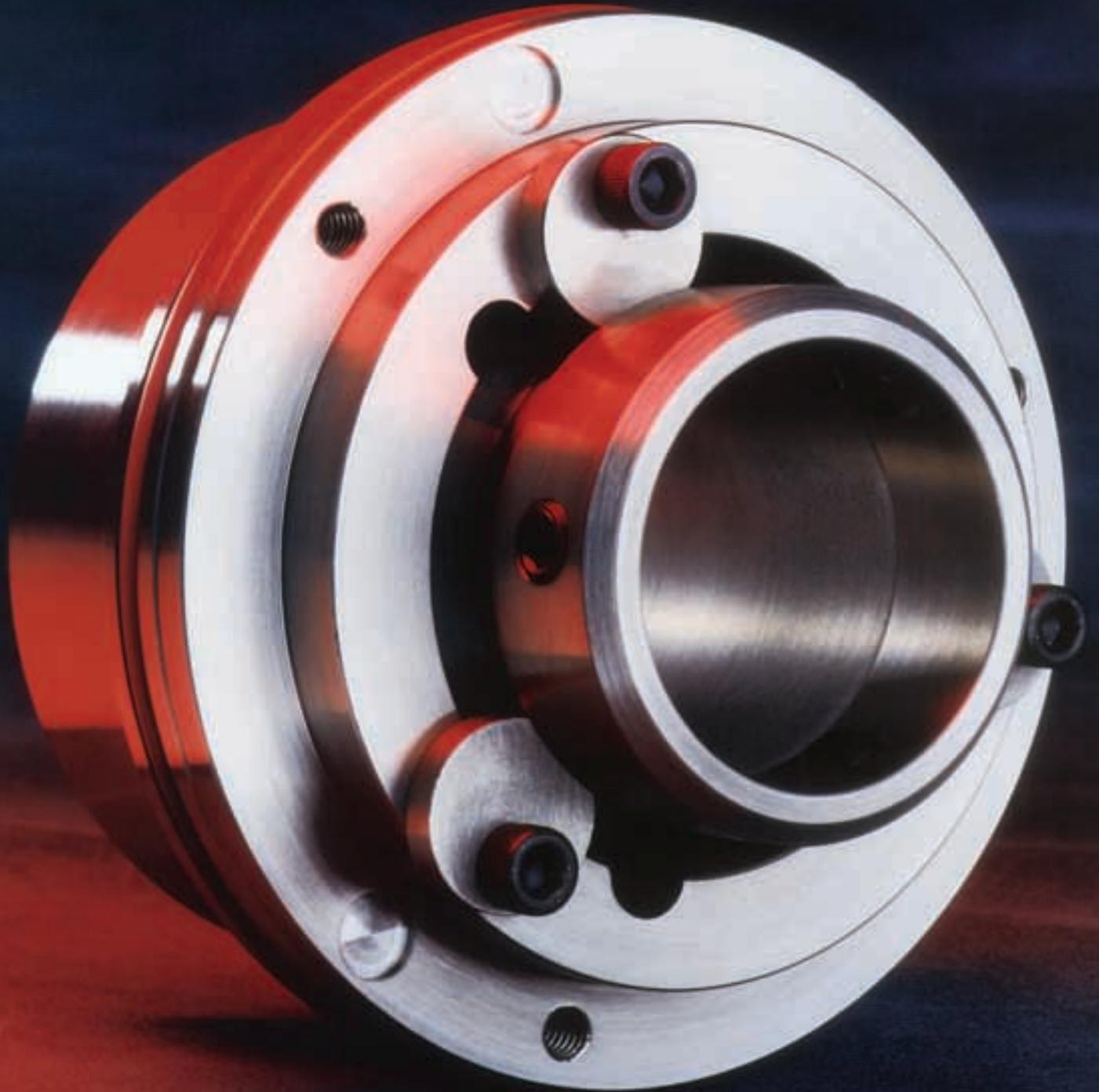




Slurry Dynamics International, Inc.



History and Profile

PANACEAL™ is successfully sealing many products in various types of fluid handling equipment **WITHOUT** any type of flush

Slurry Dynamics International has been in business since 1986, supplying and servicing our customers' needs with high quality seal products and machined parts.

The design engineers at Slurry Dynamics International have taken the time and effort to develop our seal such that it can be easily disassembled and rebuilt, either in the field or plant workshop, without the need of any special tools. Our replacement seal parts, for all our seal designs, can be easily fitted by hand using only a suitable lubricant and hand tools.

We are successfully sealing products in, but not limited to, industries such as Alumina Processing, Mining, Pulp and Paper, Municipal, Chemical, Sugar Refining, and Oil Refining.

The Panaceal™ runs in the product with NO FLUSH, thereby eliminating product dilution. In water sensitive processes, the cost to evaporate flush water out of the product is tremendous. Evaporation costs differ around the world due to varying energy costs. However, in most cases, the payback for installing a Panaceal™ Slurry Mechanical Seal is as little as one week.

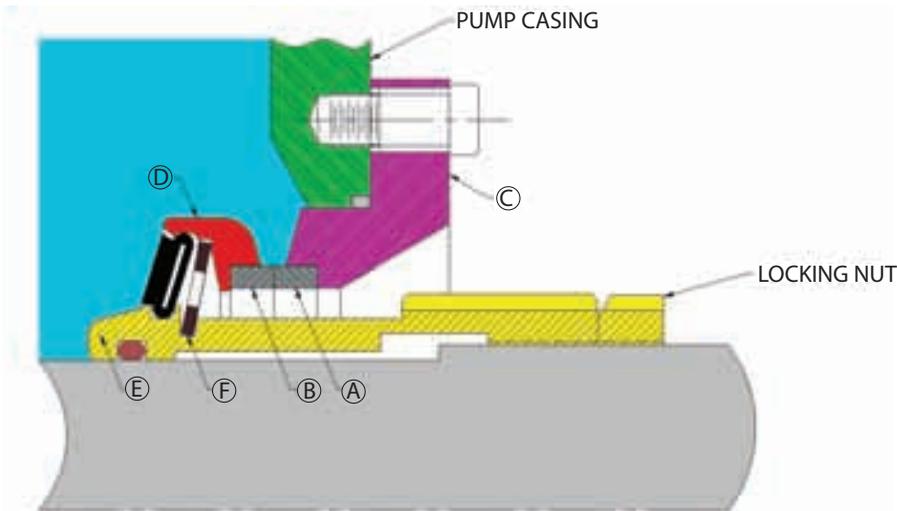
- The seal faces are cooled and lubricated by the process fluid.
- Additional savings are realized by the elimination of seal water support systems including pumps, piping, valves, instrumentation, electrical, etc.
- One gallon per minute of flush water equals 525,600 gallons per year.
- Many slurry pumps can individually use up to 30 gallons per minute.

Slurry Dynamics International is a fast growing mechanical seal company that specializes in designing and manufacturing seals for stand-alone operations in all types of abrasive/corrosive fluids.

We are constantly evaluating various seal face materials and combinations, not only to provide the optimum sealing performance while running totally submerged, but to withstand intermittent dry running situations and still maintain a positive seal when the fluid returns to the seal area. Slurry Dynamics International is committed to ongoing design and development of slurry mechanical seals with the concept of simplicity and long service life foremost in our minds.



Phosphate Plant



OPERATING PARAMETERS

Pressure: Up to 300 PSIG (2068 kPa)

Temperature: Max 500°F (260°C)
without Quench

MOH Hardness: MOH 9

% Solids by Weight: Max 65%

PANACEAL™ requires no flush, therefore, eliminating product dilution and saving on costs to remove any flush fluid

PANACEAL™: SIMPLY PERFECT

The Panaceal™ is basically made up of two sections:

- The Stationary Section consists of the Stationary Face (A) inserted into the Stationary Retainer (C) which is fastened to the pump casing.
- The Rotating Section consists of the Rotary Face (B) inserted into the Rotary Body (D). The Drive Washers (F) force the Rotary Body and Face to rotate with the Seal Sleeve (E).

As you can see in the above diagram, there is adequate clearance between the OD of the Seal Sleeve and the ID of the Rotary Body. This clearance will prevent any seal hang up due to product crystallization on the atmospheric side of the Rotary Assembly.

PANACEAL™: DESIGN FEATURES

Easy to Repair - The customer can repair the seal in their own facility without special tools or equipment.

No Flush Required - No flush piping or flush system to install and maintain. With no product dilution, energy costs are dramatically decreased.

Patented Tungsten Carbide Rotary Face Insert with Nickel or Cobalt Binders - Has better wear characteristics, will not heat check quickly, can tolerate periods of dry running, high thermal shock resistance, and a higher corrosion resistance than other tungsten carbide grades.

Seal is Internally Mounted - Seal can be installed and removed from the wet end of the pump; the drive end does not have to be disturbed, saving labor costs.

Simplicity in Motion

PANACEAL™ has been designed with fewer parts, facilitating ease of assembly and installation

RETAINER

Installs from product side ensuring ease of installation and maintenance

ROTARY BODY

Designed to allow maximum flow to seal faces

O-RING

Seals the sleeve to the rotating shaft

DRIVE KEY

Forces the rotating body to rotate integral to the seal sleeve



Alumina Plant

STANDARD MATERIALS OF CONSTRUCTION

- Metal Components - CD4, 316, S.S., High Chrome Iron and Hastelloy*
- Elastomers - Viton**, EPDM, Neoprene, and Aflas
- Seal Faces - Tungsten Carbide and Silicon Carbide

Other metals and elastomers are readily available for specific applications.

*Hastelloy is a trademark of Cabot Corporation

**Viton is a trademark of DuPont



O-RING

Seals the retainer to the equipment housing

RETAINER SCREWS

For easy attachment to the equipment housing

SETTING PLATES

Presets the seal cartridge for ease of installation & adjustment

SET SCREWS

Easy access to these screws that lock the seal sleeve to the rotating shaft

SETTING PLATE GROOVE

Determines the correct spring load & operating position of the rotary assembly

SEAL SLEEVE

Bores to accommodate shaft sizes from 1" to 10.5"

ROTARY & STATIONARY FACES

Precision lapped and extremely wear resistant for long life

O-RING

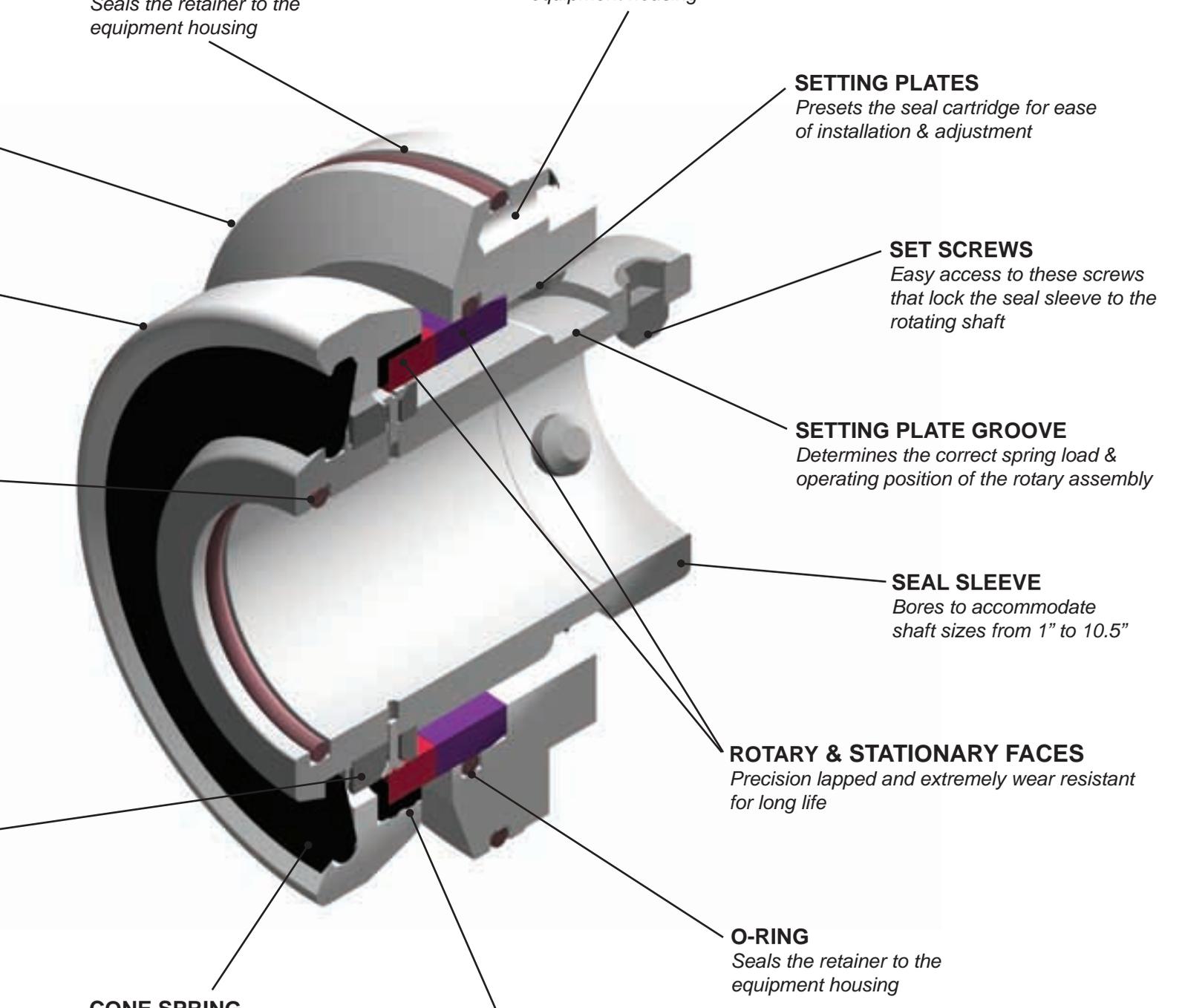
Seals the retainer to the equipment housing

CONE SPRING

Precision molded for optimum sealing and face loading

ROTARY FACE CUP

Molded elastomer allows the face to self-align



Panaceal™ Designs

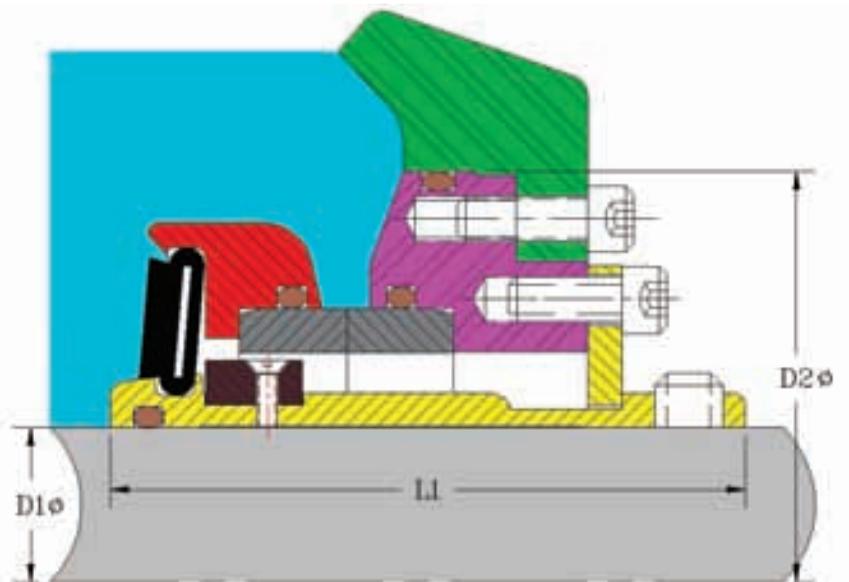
PANACEAL™ is
manufactured in
the U.S.A.

PANACEAL™: STANDARD CARTRIDGE

Slurry Dynamics International designs and manufactures a standard cartridge seal in 7 group sizes (see table below). The Panaceal™ Standard Cartridge is produced in variations of the standard design enabling the seal to fit to standard and nonstandard rotating equipment. The seals are preset at the factory.



Side Entry Mixer

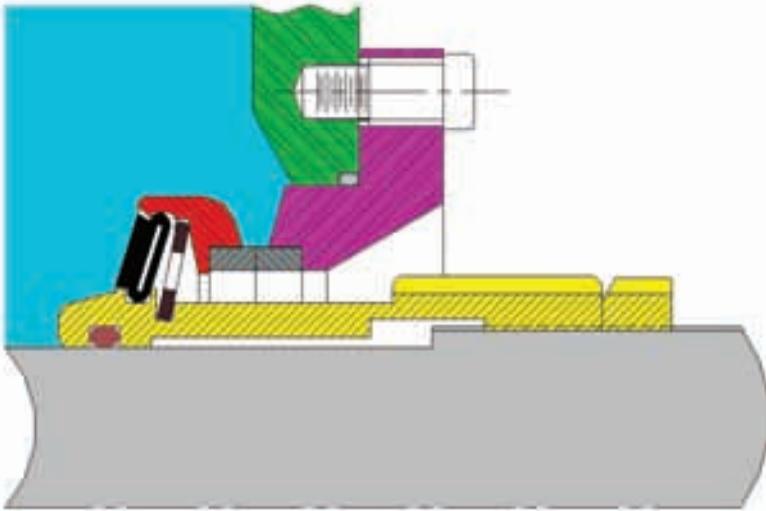


Seal Group	D ₁		D ₂		L ₁	
	Inches	MM	Inches	MM	Inches	MM
A	1-2	25-51	4.75	121	3.57	91
B	2-3	51-76	6.00	152	3.57	91
C	3-4	76-102	7.00	178	3.60	91
D	4-5.5	102-140	8.25	210	3.65	93
E	5.5-7	140-178	11.12	282	5	127
F	7-9	178-229	12.25	311	5	127
G	9-10.5	229-267	13.75	349	6	152

PANACEAL™ sealing
leaks worldwide

PANACEAL™ : THREADED DESIGN

The Panaceal™ **Threaded Design** is an alternative to the Panaceal™ Standard Cartridge Design. The compression of the spring can be adjusted by turning the threaded sleeve against the mating thread on the shaft or shaft sleeve. The threaded design allows for easy adjustment on-site.



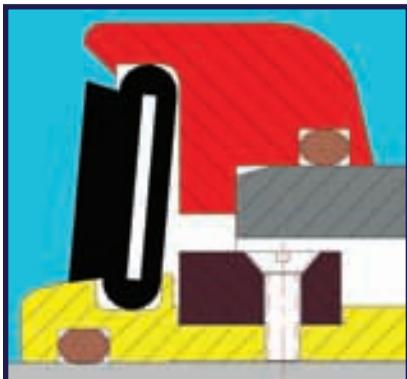
Alumina Plant

PANACEAL™ : DESIGN OPTIONS

With both the cartridge and threaded design, Slurry Dynamics International offers three options to mount the rotary face to the rotary body:

- O-Ring Mount
- Shrink Fit
- Elastomeric Cup

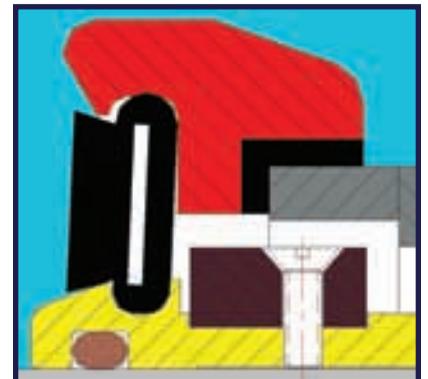
O-RING MOUNT



SHRINK FIT



ELASTOMERIC CUP





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